

# NOMINATION FOR THE 1970 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

Nominations concerning only one discovery or work on a specified subject should be included on each nomination form.

PLEASE TYPE

(S) Name Sewall Wright Academic position or title Professor (emeritus) of  
Address Department of Genetics Genetics  
University of Wisconsin, Madison, Wis. 53706  
Name Academic position or title  
Address  
Name Academic position or title  
Address

The nomination concerns the discovery of

The mathematical theory (and experimental verification) of genetic deterioration as a consequence of inbreeding.

Summary of the description of the discovery qualifying for the award

The single achievement of Wright that seems to me to be the most appropriate for the prize in physiology and medicine is his study of inbreeding and random genetic drift. In the early 1920's he devised the now-standard way of measuring inbreeding and showed that a single mathematical quantity, the inbreeding coefficient, measures both the effect of consanguineous matings and the effect of random gene frequency drift in small populations. At the same time he did a classic series of experiments on guinea pigs that demonstrated all of the effects predicted by the theory — decline in vigor and fertility on inbreeding and recovery on outcrossing, increased differentiation among inbred lines, and increased genetic homogeneity within lines. (The evidence for the latter, incidentally, included the use of skin transplants; Wright did some of the earliest and best studies of the genetic nature of histocompatibility.) This work is now a standard part of genetics, so fully accepted that its pathbreaking nature at the time is often overlooked. It, along with his method of path coefficients, provides the foundation for Wright's own later work in evolution theory. It also provides an understanding of the mechanics of rare recessive conditions in man, and has been instrumental in the analysis of the genetic hazards of population exposure to radiation.

Professor Wright's life work is revealed in his recently published monograph "Evolution and the Genetics of Populations", University of Chicago Press, which also contains extensive bibliographies.

Name of nominator:

Address:

Academic position or title:

Prof. Joshua Lederberg  
Department of Genetics  
School of Medicine  
Stanford University  
Stanford, California 94305.

Signature of Nominator:

Date:

JAN 22 1970

SEWALL WRIGHT

(see letter from [unclear])